REMARKS

Reconsideration and allowance of the above-referenced application are respectfully requested.

Claims 2 and 48 have been cancelled. Claims 50-53 have been added, and claims 1, 3-5, 8, 15, 23, 24, 47 and 49 have been amended.

In connection with the Examiner's concerns relating to trademarks, the examples recited by the Examiner are the names of companies. Normally, one does not trademark the name of the company in the application but rather the product produced by that company, where appropriate. Thus, further clarification is respectfully requested.

Additionally, it is submitted that all of the Examiner's objections to the claims have been addressed by the amendments shown above; thus, it is respectfully requested that the objections to the claims be withdrawn accordingly.

Rejection of Claims 1-5 and 47-48 Under 35 U.S.C. 112, Second Paragraph

The Examiner has rejected claims 1-5 and 47-48 under Section 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In response, it is submitted that the above amendments to the claims adequately address the Examiner's concerns giving rise to the rejection; thus, it is respectfully requested that the rejection be withdrawn.

Rejection of Claims 1, 4-5 and 47 Under 35 U.S.C. 112, First Paragraph

The Examiner has rejected claims 1, 4-5 and 47 under Section 112, first paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

In response, it is believed that all of the Examiner's concerns giving rise to the rejection have been adequately addressed by the amendments presented above. Consequently, it is respectfully requested that the rejection be withdrawn.

Also, the Examiner is requested to note that MELO7 and MELO4 are 58.9% identical at the amino acid level and 67.7% similar at the amino acid level. It should also be noted that MELO7 (SEQ ID NO:64) has 93% identity in a 299 amino acid overlap to the amino acid sequence of HSELO1 (SEQ ID NO:60) disclosed in the application, further supporting the

fact that the present invention encompasses sequences having at least 70% similarity or at least 60% identity to SEQ ID NO:64. Consequently, the specification not only encompasses the claimed polypeptide sequences but also related sequences having the claimed amino acid identity or similarity. (One of ordinary skill in the art may readily calculate either percent similarity or identity by comparing the two amino acid sequences of these proteins (i.e., SEQ ID NO:63 and SEQ ID NO:64) or any two proteins.

Rejection of Claims 1, 3-5 and 47 Under 35 U.S.C. 112, First Paragraph

The Examiner has rejected claims 1, 3-5 and 47 under Section 112, first paragraph. The Examiner contends that the specification, while being enabling for the polynucleotide of SEQ ID NO:5 or 6, does not reasonably provide enablement for any polynucleotide of any function which is at least 35% sequence homologous to the polynucleotides of SEQ ID NO:5 or 6.

Applicants submit that the Examiner's concerns have been adequately addressed by the amendments noted above. Thus, it is respectfully requested that the rejection be withdrawn.

Rejection of Claims 1-5, 8-9, 11-17, 19-22 and 47 Under 35 U.S.C. 102(a)

The Examiner has rejected claims 1-5, 8-9, 11-17, 19-22 and 47 under Section 102(a) as being anticipated by Tvrdik et al.

The Examiner's Position

The Examiner contends that Tvrdik et al. teaches a polynucleotide isolated from a mouse which comprises the entire sequence of SEQ ID NO:5. Further, the Examiner contends that the polynucleotide of Tvrdik et al. is 38.3% homologous to the polynucleotide of SEQ ID NO:6. Also, the Examiner contends that Tvrdik et al. teach vectors and host cells comprising the polynucleotide as well as the insertion of a vector comprising the polynucleotide in yeast mutant cells to produce the corresponding protein. Consequently, the Examiner asserts that the teachings of Tvrdik et al. anticipate the claims as written.

The Applicants' Position

The Applicants submit that, as evidenced by the attached Rule 131 Declaration, the claimed invention was conceived of and reduced to practice prior to the publication date of Tvrdik et al. (May 2000). Thus, the Section 102(a) rejection has been overcome and should be withdrawn accordingly.

Rejection of Claims 1, 4-5 and 47 Under 35 U.S.C. 102(b)

The Examiner has rejected claims 1, 4-5 and 47 under Section 102(b) as being anticipated by Ishizaka et al. (EPO publication number EP0285405; GenEMBL accession number I05465).

The Examiner's Position

The Examiner contends that Ishizaka et al. teach a mouse polynucleotide which is 95.2% sequence homologous to the polynucleotide of SEQ ID NO:6 and 37.6% sequence homologous to the polynucleotide of SEQ ID NO:5. Thus, the Examiner alleges that the Ishizaka et al. document anticipates the claims as written.

The Applicants' Position

The Applicants respectfully traverse the rejection of claims 1, 4-5 and 47 under Section 102(b) as being anticipated by Ishizaka et al.

It is submitted that the Ishizaka et al. document does not disclose the sequences of the claimed invention. Thus, the Section 102(b) rejection should be withdrawn accordingly.

Rejection of Claims 10 and 18 Under 35 U.S.C. 103(a)

The Examiner has rejected claims 10 and 18 under Section 103(a) as being unpatentable over Tvrdik et al.

The Examiner's Position

The Examiner contends that it would have been obvious to one of ordinary skill in the art at the time the invention was made to transform E. coli host cells with a vector comprising the polynucleotide of Tvrdik et al. and use it in a method to produce the corresponding polypeptide. The Examiner concludes that the invention as a whole would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made.

The Applicants' Position

Applicants submit that the Section 103(a) rejection of claims 10 and 18 as being obvious over the Tvrdik et al. document has been overcome in view of the attached Rule 131 Declaration. More specifically, the Rule 131 Declaration establishes that the nucleotide sequences encoding the MEL04 and MEL07 enzymes were isolated prior to the publication date of the Tvrdik et al. document. Thus, the Declaration overcomes a rejection of a claim reciting a method of producing the relevant enzyme using a host cell transfected with a vector comprising the nucleotide

sequence (claim 10) as well as a host cell transfected with a vector comprising the nucleotide sequence encoding the enzyme (claim 18). Furthermore, the Declaration actually evidences construction of the vector as well as transformation of the host cell transfected with the vector comprising the nucleotide sequence of MEL04 as well as transformation of a host cell transfected with a vector comprising the nucleotide sequence of MEL07. Consequently, in view of the Rule 131 Declaration, the rejection should be withdrawn.

Rejection of Claims 23 and 24 Under 35 U.S.C. 103(a)

The Examiner has rejected claims 23 and 24 under Section 103(a) as being unpatentable over Tvrdik et al. in view of Lassner et al.

The Examiner's Position

The Examiner contends that it would have been obvious to one of ordinary skill in the art at the time the invention was made to transform a plant cell or plant, as taught by Lassner et al., with a vector comprising the polynucleotide of Tvrdik et al. Further, the Examiner alleges that the invention as a whole would have been prima facie obvious to a person of ordinary skill in the art at the time the invention was made.

The Applicants' Position

Applicants respectfully submit that the rejection of claims 23 and 24 as being obvious over Tvrdik et al. in view of Lassner et al. has been overcome in view of the Rule 131 Declaration.

More specifically, in view of the isolation of the polynucleotide sequences encoding MELO4 and MELO7 prior to the publication date of Tvrdik et al., as established by the Declaration, the Tvrdik et al. document must be eliminated or fall as a primary reference from the rejection. Furthermore, the secondary reference of Lassner et al. does not teach or suggest the claimed invention unilaterally. In particular, it does not teach or suggest the polynucleotide sequences encoding MELO4 or MELO7 and thus plant cells, plants or plant tissues comprising a vector which, in turn, includes these polynucleotide sequences. Thus, it is submitted that the rejection has been overcome and should be withdrawn accordingly.

In conclusion, it is believed that the subject application is in condition of allowance and Notice to that effect is respectfully requested.

Should the Examiner have any questions concerning the above, it is respectfully requested that the undersigned be contacted at the number listed below.

Respectfully submitted,
Mukerji et al.

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Please amend the above-referenced application as follows:

IN THE CLAIMS:

Please amend claims 1, 3-5, 8, 15, 23, 24, 47 and 49 as follows:

1. (amended) An isolated [nucleotide sequence corresponding to] polynucleotide comprising or completely complementary to [at least about 35% of] the nucleotide sequence [comprising SEQ ID NO:5 (Figure 54)] of SEQ ID NO:5.

3. (amended) The isolated [nucleotide sequence of claims 1 or 2] polynucleotide of claim 1 wherein said [sequence] isolated polynucleotide encodes a functionally active elongase which utilizes a polyunsaturated fatty acid as a substrate.

4. (amended) The [nucleotide sequence] isolated polynucleotide of claim 1 wherein said [sequence] isolated polynucleotide is derived from a mammal.

5. (amended) The [nucleotide sequence] isolated polynucleotide of claim 4 wherein said [sequence] isolated polynucleotide is derived from a mouse.

8. (amended) A method of producing an elongase enzyme comprising the steps of:

a) isolating a [nucleotide sequence comprising SEQ ID NO:5 (Figure 54) or SEQ ID NO:6 (Figure 58)] polynucleotide comprising the nucleotide sequence of SEQ ID NO:5 or SEQ ID NO:6;

b) constructing a vector comprising[: i) said isolated nucleotide sequence operably linked to ii) a promoter] said polynucleotide of step (a) operably linked to a promoter;

c) introducing said vector into a host cell under time and conditions sufficient for expression of said elongase enzyme.

15. (amended) A vector comprising[: a) a nucleotide sequence comprising SEQ ID NO:5 (Figure 54) operably linked to b) a promoter] a polynucleotide operably linked to a promoter, wherein said polynucleotide comprises the nucleotide sequence of SEQ ID NO:5.

23. (amended) A plant cell, plant or plant tissue comprising [said] the vector of claim 15, wherein expression of said [nucleotide sequence] polynucleotide of said vector results in production of a polyunsaturated fatty acid by said plant cell, plant or plant tissue.

24. (amended) The plant cell, plant or plant tissue of claim 23, wherein said polyunsaturated fatty acid is selected from the group consisting of [AA, ADA, GLA and STA] arachidonic acid (AA), adrenic acid (ADA), γ-linoleic acid (GLA) and stearidonic acid (ADA).

47. (amended) An isolated [nucleotide sequence corresponding to] polynucleotide comprising or completely complementary to [at least about 35% of the nucleotide sequence comprising SEQ ID NO:6 (Figure 58)] the nucleotide sequence of SEQ ID NO:6.

49. (amended) A purified protein encoded by said [nucleotide sequence of claims 47 or 48] polynucleotide of claim 47.